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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/587,850	07/28/2006	Max Mayer		9774
7590 Bernhard Bausenwein Eichenstr 32 Hagelstadt, D-93095 GERMANY				
			EXAMINER CHAPEL, DEREK S	
			ART UNIT 2872	PAPER NUMBER
			MAIL DATE 02/12/2009	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/587,850

**Applicant(s)**

MAYER ET AL.

**Examiner**

DEREK S. CHAPEL

**Art Unit**

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 November 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 2-30 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date: \_\_\_\_\_

## **DETAILED ACTION**

### ***Status Of Claims***

1. This Office Action is in response to an amendment received 11/26/2008 in which Applicant lists claim 1 as being cancelled, claims 9-11 and 19 as being withdrawn-currently amended, claims 2-8, 12-18, and 20-25 as being currently amended, and claims 26-30 as being new. It is interpreted by the examiner that claims 2-30 are pending.
2. In view of the amendments made to the claims, the restriction requirement dated 9/2/2008 is vacated, and a new restriction requirement follows.

### ***Election/Restrictions***

3. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claims 9-11 and 19, drawn to a complex polarizer system for reciprocal polarization (cross-polarizer) comprising two optical paths S1 and S2 intersecting in P1 with equal cutting angles between N1 and S1 and between N1 and S2; the architecture of the system coupling the transmission at P1 to a reflection at the further polarizing along S1 and the corresponding reflection at P1 to a transmission at the further polarizer along S2.

Group II, claim 27, drawn to a method for reciprocal polarization (cross-polarization), using a light source; using three polarization beam splitting layers Ptrans1ref1, with a polarizing layer vector Vtrans1ref1, Pref2, with a polarizing layer vector Vref2, and Ptrans2, with a polarizing layer vector Vtrans2; using the optical axis Atrans1 and the optical axis Aref1 which is derived from Atrans1 by mirroring Atrans1 at the plane of Ptrans1ref1; using a polarized beam Btrans1ref2, which transmits Ptrans1ref1 along Atrans1, located between Ptrans1ref1.

Group III, claim 28, drawn to a method for reciprocal polarization (cross-polarization), using a light source; using four polarization beam splitting subprocesses (either a polarizing transmission or a polarizing reflection at a polarizing beam splitting layer) Ptrans1, Pref1, Pref2, Ptrans2; using a polarized beam Btrans1ref2, transmitting at the process Ptrans1; using a polarized beam Bref1trans2, which is reflected at Pref1; said Ptrans1 and Pref1 subprocesses being the polarizing transmission subprocess and polarizing reflection subprocess of a common polarization split process; sending Btrans1ref2 through the polarizing reflection subprocess Pref2, thus coupling the polarizing transmission Ptrans1 of Btrans1ref2 to the polarizing reflection Pref2 of Btrans1ref2; sending Bref1trans2 through the polarizing transmission subprocess Ptrans2, thus coupling the polarizing reflection Pref1 of Bref1trans2 to the polarizing transmission Ptrans2 of Bref1trans2.

Group IV, claims 29, 2-8, 12-18, and 20-26, drawn to a complex polarizer system for reciprocal polarization (cross-polarizer) comprising an arrangement of three polarizing beam splitting layers  $P_i$  ( $i=1,2,3$ ); the position of each of said  $P_i$  described by its unit normal vector  $N_i$  and its position vector  $L_i$ ; the polarization beam splitting characteristics of  $P_i$  described by a polarizing layer vector  $V_i$  coplanar to  $P_i$  such that light incident on  $P_i$  in  $L_i$  along an arbitrary incidence vector  $T_i$  is split into a transmitted beam with the plane of polarization trans-POP:  $((T_i \times V_i) \times T_i) \cdot (X - L_i) = 0$ , and a reflected beam (the according reflection vector being described by  $R_i = T_i - 2(T_i \cdot N_i)N_i$ ) with the plane of polarization ref-POP:  $(R_i \times V_i) \cdot (X - L_i) = 0$ , with  $(a \cdot b)$  being the scalar product of the two vectors  $a$  and  $b$  and with  $(a \times b)$  being the cross product of the two vectors  $a$  and  $b$ .

Group V, claim 30, drawn to a complex polarizer system for reciprocal polarization (cross-polarizer) comprising an arrangement of three polarizing beam splitting layers  $P_i$  ( $i=1,2,3$ ); the polarizing beam splitting characteristics of said  $P_i$  being described by a polarizing layer vector  $V_i$  coplanar to  $P_i$  such that linearly polarized light incident on  $P_i$  is maximally reflected if its plane of polarization is coplanar to  $V_i$ ; positioning said three layers such that there exists at least one position vector  $L_i$  pointing to a point in each  $P_i$  so that

$[V_2 \times (L_2 - L_1)] \cdot [V_1 \times (L_2 - L_1)] = 0$  (coupling of  $P_1$  and  $P_2$ );

$[V_3 \times (L_3 - L_1)] \cdot [V_1 \times (L_3 - L_1)] = 0$  (coupling of  $P_1$  and  $P_3$ );

$k(L_3 - L_1) = (L_2 - L_1) - 2[(L_2 - L_1) \cdot N_1]N_1$  (coupling of the two couplings);

with  $N_1$  being the unit normal vector of  $P_1$ , and  $(a \cdot b)$  being the scalar product of the two vectors  $a$  and  $b$ , and  $(a \times b)$  being the cross product of the two vectors  $a$  and  $b$ .

4. The inventions listed as Groups I, II, III, IV and V do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the claims

have limitations drawn to mutually exclusive corresponding special technical features as set forth in the groupings above.

5. The examiner has required restriction between product and process claims.

Where applicant elects claims directed to the product, and the product claims are subsequently found allowable, withdrawn process claims that depend from or otherwise require all the limitations of the allowable product claim will be considered for rejoinder. All claims directed to a nonelected process invention must require all the limitations of an allowable product claim for that process invention to be rejoined.

In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103 and 112. Until all claims to the elected product are found allowable, an otherwise proper restriction requirement between product claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowable product claim will not be rejoined. See MPEP § 821.04(b). Additionally, in order to retain the right to rejoinder in accordance with the above policy, applicant is advised that the process claims should be amended during prosecution to require the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder.** Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

6. A telephone call was not made to Dr. Bernhard Bausenwein to request an oral election to the above restriction requirement because Dr. Bausenwein is in Germany and there is no telephone number on record.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species or invention to be examined even though the requirement may be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

The election of an invention or species may be made with or without traverse. To preserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse.

7. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

#### ***Claim Objections***

8. The amendments to the claims dated 11/26/2008 are accepted. The objections to the claims cited in the office action mailed 9/2/2008 are hereby withdrawn.

**Conclusion**

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DEREK S. CHAPEL whose telephone number is (571)272-8042. The examiner can normally be reached on M-F 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephone B. Allen can be reached on 571-272-2434. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. S. C./  
Examiner, Art Unit 2872  
2/2/2009

/Stephone B. Allen/  
Supervisory Patent Examiner  
Art Unit 2872